UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/778,130	02/06/2001	Jonathan Williams Haines	SEA10033/40046.149-US-U1	3191

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MERCHANT & GOULD P.C.
P.O. Box 2903
Minneapolis, MN 55402-0903

EXAMINER
LI, ZHUO H

ART UNIT	PAPER NUMBER
2186	4

DATE MAILED: 08/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/778,130	HAINES ET AL.
	Examiner	**Art Unit**
	Zhuo H Li	2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _06 February 2001_ .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-20_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-18 and 20_ is/are rejected.

7)☒ Claim(s) _19_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)	4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) ☐ Notice of Informal Patent Application (PTO-152)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _3_ .	6) ☐ Other: .

DETAILED ACTION

Information Disclosure Statement

1.   The Information Disclosure Statement filed on February 6, 2001 (Paper no. 3) has been

considered.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
> in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
> patent by another filed in the United States before the invention by the applicant for patent, except that an
> international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this
> subsection of an application filed in the United States only if the international application designated the United
> States and was published under Article 21(2) of such treaty in the English language.

3.   Claims 1-10, 12-18 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by

DeMoney (US PAT. 6,385,673).

Regarding claim 1, DeMoney discloses a method for characterizing performance of a

data handling system (300, figure 3) having a cache, i.e., buffer ring (405), comprising steps of

sending commands to the data handling system for a set of data blocks that are large relative to a

size of the cache dedicated for the commands, i.e., commands with media stream are sent by the

requester of continuous media to the disk subsystems (204, figure 4), and the number of buffer

rings is created based on the size and guaranteed stream rate with associated deadline time

queued (col. 11 line 24 through col. 12 line 35), recording a block service time, i.e., deadline

access times, for each large data block, comparing the block service time to a first threshold,

scoring the data handling system based on the comparison o the block service time to the first

threshold (col. 12 line 35 through col. 13 line 61 and col. 15 lines 37-55).

Regarding claim 2, DeMoney discloses the data handling system includes a disc drive,

i.e., RAID storage system (204).

Regarding claim 3, DeMoney disclose the method wherein the commands from the

sending step are configured to cause the disc drive to parse the command, seek to an appropriate

track on the disc of the disc drive, wait for an appropriate location on the disc, track-follow on

the appropriate track, and pass data between a buffer of the disc drive and the disc and between

the buffer and a host computer interfaced with the disc drive, i.e., video storage manager further

comprising a disk schedulers (408, figure 4) corresponding to each RAID storage systems (204,

figure 4), and each disk scheduler is able to communicate with seek reorder queue (750) and

bandwidth allocator to distribute each requested command with their associated deadline to the

appropriate track of the storage system (col. 14 lines 5-27 and col. 16 line 20 through col. 17 line

21).

Regarding claim 4, DeMoney disclose the method wherein the data handling system

includes a computer network and commands from the sending step are configured to cause one

or more networked computers to parse the command, transmit a request for re-transmission over

the network, and receive retried data transmitted over the network (col. 10 lines 5-33 and figure

3).

Regarding claim 5, DeMoney discloses the method wherein the data blocks are randomly

positioned (col. 17 line 22 through col. 18 line 13).

Regarding claim 6, DeMoney discloses the method wherein the scoring step comprising

heavily and negatively weighting the block service times exceeding the first threshold, lightly

and positively weighting the block service times not exceeding the first threshold, and averaging

the weighted block service times, i.e., each request with associated deadline to meet the

guarantee rate. (col. 5 line 55 through col. 6 line 28, col. 11 line 40 through col. 12 line 22 and

col. 15 line 21 through col. 16 line 13).

Regarding claim 7, DeMoney discloses the method further comprising steps of recording

the size of data quality errors produced in response to the commands, recording the frequency of

data quality errors produced in response to the commands, i.e., peaks condition in the storage

activity, and accounting for the size and frequency of data quality errors in scoring step, a ring of

buffers between each client and the file system, and the number of buffers in a ring is determined

according to the contracted guarantee rate of the associated media stream and characteristics of

the storage system so that the guaranteed rate is always met in order to leveling the storage

activity. (col. 11 lines 5-39).

Regarding claim 8, DeMoney discloses the method further comprising steps of estimating

the minimum and maximum sustained data rates from the recorded block service times (col. 11

line 40 through col. 13 line 5).

Regarding claim 9, DeMoney discloses the method wherein the data handling system

includes a disc drive i.e., RAID storage system (204), the method further comprising steps of

estimating the locations of data on a disc of the disc drive from the recorded block service times

and corresponding commands and determining a fraction of the drive that allows block service

times to not exceed the first threshold from the estimated locations and corresponding block

service times (col. 14 lines 5-27, col. 11 line 40 through col. 12 line 34 and col. 16 line 20

through col. 17 line 21).

Regarding claim 10, DeMoney discloses the method further comprising steps of

computing a second threshold for a mode, i.e., non-rate guaranteed, that varies from a mode, i.e.,

guaranteed rate/deadline metadata, corresponding to the first threshold, comparing the block

service time to the second threshold, and scoring the data handling system for the second mode

based on the comparison of the block service time to the second threshold (col. 13 line 23

through col. 14 line 27).

Regarding claim 12, DeMoney discloses the method wherein the sending step further

comprises sending commands that prioritize throughput over data quality (col. 17 line 22 through

col. 18 line 42).

Regarding claim 13, DeMoney disclose a system (300, figure 3) for characterizing

performance of a data handling system (206, figure 4) having a cache, i.e., buffer ring (405),

comprising a host computer (402, figure 4) for providing commands that are service by the data

handling system, the host computer configured to send commands to the data handling system

for a set of data blocks that are large relative to a size of the cache dedicated for the commands,

.e., commands with media stream are sent by the requester of continuous media to the disk

subsystems (204, figure 4), and the number of buffer rings is created based on the size and

guaranteed stream rate with associated deadline time queued (col. 11 line 24 through col. 12 line

35), record a block service time, i.e., deadline access times, for each large data block, compare

the block service time to a first threshold, and score the data handling system based on the

comparison of the block service time to the first threshold (col. 12 line 35 through col. 13 line 61

and col. 15 lines 37-55), and interface for communicating the commands from the host computer

to the data handling system (figure 4 and col. 10 lines 34-53).

Regarding claim 14, DeMoney discloses the performance characterization system

wherein the data handling system includes a disc drive, i.e., RAID storage system (204), and the

commands from the system for characterizing performance are configured to cause the disc drive

to parse the command, seek to an appropriate track on the disc of the disc drive, wait for an

appropriate location on the disc, track-follow on the appropriate track, and pass data between a

buffer of the disc drive and the disc and between the buffer and a host computer interfaced with

the disc drive, i.e., video storage manager further comprising a disk schedulers (408, figure 4)

corresponding to each RAID storage systems (204, figure 4), and each disk scheduler is able to

communicate with seek reorder queue (750) and bandwidth allocator to distribute each requested

command with their associated deadline to the appropriate track of the storage system (col. 14

lines 5-27 and col. 16 line 20 through col. 17 line 21).

Regarding claim 15, the limitations of the claim are rejected as the same reasons set forth

in claim 4.

Regarding claim 16, the limitations of the claim are rejected as the same reasons set forth

in claim 5.

Regarding claim 18, the limitations of the claim are rejected as the same reasons set forth

in claim 10.

Regarding claim 20, DeMoney discloses a system (300, figure 3) for characterizing the

performance of a data handling system (206, figure 4) comprising an interface (col. 10 lines 35-

37), and a processing means for communicating commands through the interface to the data

handling system and for scoring the data handling system based on the response to the

commands (col. 4 line 8 through col. 8 line 27 and col. 10 line 26 through col. 11 line 4).

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

5.   Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over DeMoney (US

PAT. 6,385,673).

Regarding claim 11, DeMoney discloses the method further comprising steps of

computing a third threshold for an alternate block size that varies from a size of the data blocks

of sending step, comparing the block service time to the third threshold, and scoring the data

handling system for the alternate block size based on the comparison of the block service time to

the third threshold (col. 12 line 9 through col. 13 line 22). Although DeMoney does not clearly

discloses a third threshold for an alternate block size that varies from a size of the data blocks of

sending step, DeMoney discloses stream manager is able to determines the various stream rate

and various block size for each new stream, such as aggregate load or continuous media streams

with independence and appropriate buffer ring size (col. 12 line 9-22), it recognizes DeMoney

teaches a third threshold with alternate block size than the first threshold because it eliminates

the worst possible service time for the request will exceed the deadline or maximum service

time.

Allowable Subject Matter

6.   Claim 19 is objected to as being dependent upon a rejected base claim, but would be

allowable if rewritten in independent form including all of the limitations of the base claim and

any intervening claims.

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

        Megiddo (US PAT. 6,571,298) discloses system and method for grouping disk access

commands in a queue according to proximate disk positions (abstract).

        Taugher et al. (US PAT. 6,496,913) discloses system and method for detecting and

correcting fragmentation on optical storage media (col. 2 line 49 through col.3 line 49).

        Sokolov (US PAT. 5,890,213) discloses disk drive with cache having adaptively aged

segments (abstract).

8.   Any response to this action should be mailed to:

                Commissioner of Patents and Trademarks

                Washington, D.C. 20231

        Or faxed to:

                (703) 308-6606

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,

Arlington, VA, Fourth Floor (Receptionist).

9.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Zhuo H. Li whose telephone number is 703-305-3846. The

examiner can normally be reached on Tuesday to Friday from 9:30 a.m. to 7:00 p.m. The

examiner can also be reached on alternate Monday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Matthew Kim, can be reached on (703) 305-3821.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is (703) 305-3900.

Zhuo H. Li
Art Unit 2186

MATTHEW KIM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100